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2008

Integrating the Grounded Theory Method and Case Study Research Methodology Within IS Research: A Possible 'Road Map'

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INTEGRATING THE GROUNDED THEORY METHOD AND CASE STUDY RESEARCH METHODOLOGY WITHIN IS RESEARCH: A POSSIBLE "ROAD MAP"

Intégrer la théorie enracinée et la méthode des études de Cas dans la recherche en SI : une « Feuille de Route »

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Abstract

Grounded theory is used by many IS researchers. Sometimes they apply it as a method and sometimes they apply it as a methodology. This different application stems from the debate between Glaser and Strauss; the originators of this theory. Some IS research implies the simultaneous use of case study and grounded theory. However, no conceptual/theoretical research for IS researchers yet specifies how grounded theory can be used as a method to be embraced within an interpretive case study strategy, to define a research methodology. This paper is therefore written to help IS researchers who are considering the use of grounded theory as a data analysis method in a manner compatible with the case study strategy, by first justifying the use of Strauss's approach in this integration and secondly showing how this integration might be achieved.

Keywords: Grounded theory, Strauss's approach, Case study, IS Research Methodology

Résumé

Aucune recherche conceptuelle/théorique en SI n'a encore spécifié comment la théorie enracinée peut être employée comme méthode pour être incorporée dans une stratégie interprétative d'étude de cas, afin de constituer une méthode de recherche. Ce papier est donc écrit pour aider les chercheurs en SI qui souhaitent utiliser la théorie enracinée comme méthode d'analyse des données de manière compatible avec la stratégie d'étude de cas.

Introduction

Grounded theory has been used by many IS researchers since the beginning of the 1990s (see for example Orlikowski 1993; Urquhart 2001; Fernández et al. 2002; Linden and Cybulski 2003; Allan 2003; Sorrentino and Virili 2005; Hansen and Kautz 2005; Coleman and O'Connor 2007). It is becoming increasingly popular in IS research, as there is a widely held belief that it is a reliable method by which to investigate social and organisational phenomena, although it is still relatively new to this field (Jones and Hughes 2004), having been first applied to IS research about thirty years after its development by Glaser and Strauss in 1967.

The general goal of grounded theory is to generate theories derived from data in order to understand the social context. It is a "qualitative research method that uses a systematic set of procedures to develop an inductively derived grounded theory about a phenomenon" (Strauss 1990, p.24). Hekkala (2007) indicates that grounded theory has been used in IS research as a method (by, among others, Urquhart 2002; Jones and Hughes 2004) but that it has also been sometimes used as a methodology (by researchers including Orlikowski 1993; Goulding 1999; Goede and Villiers 2003). Hekkala (2007) states that those who use it either as method or as a methodology do not soundly and logically demonstrate and justify their use of this theory for either of those purposes. The current authors define method as a procedure or technique used to collect and/or analyze data, whilst a methodology refers to the entire research process, from the identification of one or more research questions and the selection of a research method through to the formulation of the findings and results, in which the entire process is based on philosophical assumptions (ontology and epistemology). This view of the two terms coincides with Avison and Fitzgerald's (1995) definitions: a methodology is a collection of procedures, techniques, tools and documentation which is based on some philosophical view; otherwise it is merely a method, like a recipe. A case study method which includes grounded theory analysis under interpretative assumptions would therefore be classed as a methodology. The aim of this paper is to argue that grounded theory (as a method) can be combined with case study method to construct a compatible research methodology, and to highlight how this combination may be achieved.

The rest of this paper comprises six sections. The first of these sections presents the philosophical paradigms of IS research and their influence on method selection. The next section discusses the two approaches to grounded theory, and the third section explains the procedures and techniques of grounded theory as a method for data analysis. The fourth section justifies the reasons for using grounded theory (Strauss's approach) in combination with case study method to construct a methodology emerging from this integration, while the fifth section shows the criteria for evaluating the proposed methodology and presents the roadmap, including all the methods and techniques, covering every stage of the research. The final section provides a summary and conclusion. In this paper, the authors draw upon their personal research experience when combining grounded theory and case study method gained during the investigations into the factors influencing IT adoption. It is important to note that this paper does not explain what a case study research is because it assumes the reader's knowledge of this method (see for example Yin 1994; Walsham 1995).

IS Research Paradigms and associated Research Methods

Klein &Myers (1999) distinguish three paradigms of IS research; positivist, interpretive, and critical. These paradigms are different according to the philosophical assumptions of whether the empirical world (ontology) is considered to be objective and exist independently of humans, or is subjective and constructed through human action and beliefs. Also, there are assumptions about the nature of knowledge (epistemology), how it is created and evaluated.

Positivist research considers the social word exists independently of human action and beliefs and can be described by measurable variables, which are independent of the researcher and human action and experience (Orlikowski & Baroudi 1991). It is concerned with testing theories in order to predict and discover facts and laws. Interpretative

research considers that the world is constructed and interpreted by the human actions and beliefs and that the main aim of interpretative research is to understand the phenomena and make sense of the research problem through accessing the meanings that are assigned by the human (Orlikowski & Baroudi 1991). Interpretive research considers that scientific knowledge is not captured in hypothetical deductions but through the understanding of the human and social interactions by which the subjective meaning of the reality is constructed (Walsham 1995). Critical researchers believe that social reality is historically constructed and that it is formed and reformed by people (Myers and Avison, 2002). The basic difference between critical and interpretive research is that the former is transformative in its nature, focusing on changing the status quo (e.g. "related to emancipation and empowerment"), while interpretive research can be seen as more neutral and descriptive (Khazanchi & Munkvold 2003). Klein and Myers (1999, p.3), state "IS research can be classified as critical if the main task is seen as being one of social critique, whereby the restrictive and alienating conditions of the status quo are brought to light".

Research methods are usually classified into quantitative and qualitative. Grounded theory, case study, ethnography and action research are qualitative research methods that are typically associated with interpretive paradigms. However, a case study as a qualitative research method can be either positivist or interpretive (Myers & Avison 2002). For example, if a case study is planned to focus on exploring the implementation of IT strategy within a particular organization, where the role of the researcher is solely to test and seek answers to predefined and fixed questions (i.e., there is no change of questions in response to the answers provided by the participants, even if the answers vary in reflection of the individual's particular experiences and beliefs), then this case study is based on positivist assumptions and not the interpretive assumptions that are typically associated with case study method application. Therefore, it is crucial when integrating two or methods, such as that proposed within this paper with respect to case study and grounded theory) to make sure that the philosophical assumptions behind the methods are the same.

Grounded theory variants

Grounded theory was developed by Glaser and Strauss (1967), and their combined work can be considered as the first version of this theory. Strauss and Corbin (1990, 1998) subsequently developed and extended the original theory, which later faced criticisms from Glaser (1994). The divergence between the two original authors leads to what is commonly termed the Glaserian approach and the Straussian approach to grounded theory (Hekkala 2007).

In the IS field, many researchers have applied grounded theory without even mentioning that there are two distinct approaches. Hekkala (2007) confirms this by giving examples of papers (see for example Orlikowski 1993;; Galal and McDonnel 1997; Lubbe and Remenyj 1999; Lehnmann 2001; Rowlands 2005) where there is no mention as to the variant of grounded theory being adopted. Thus, identifying the attributes of the two approaches is essential to help researchers be aware from the outset as to which approach is more appropriate to their research and to adopt with case study research. Onions (2006) highlights the major differences between the two grounded theory approaches as shown in Table 1.

Table 1. Grounded Theory Variants

Glaserian Approach	Straussian Approach
Beginning with general wonderment (an empty mind)	Having a general idea of where to begin
Emerging theory, with neutral questions	Forcing the theory, with structured questions
Development of a conceptual theory (abstraction of time, people and place)	Conceptual description (description of situations)
The theory is grounded in the data	The theory is interpreted by an observer
Inductive method	Inductive-deductive method
The researcher is passive, exhibiting disciplined restraint	The researcher is active
Data reveals the theory	Data is structured to reveal the theory
Coding is less rigorous, a constant comparison of	Coding is more rigorous and defined by technique.

incident to incident, with neutral questions and categories and properties evolving. Take care not to 'over-conceptualise', identify key points	The nature of making comparisons varies with the coding technique. Labels are carefully crafted at the time. Codes are derived from 'micro-analysis which consists of analysis data word-by-word'
Two coding phases or types, simple (fracture the data then conceptually group it) and substantive (open or selective, to produce categories and properties)	Three types of coding, open (identifying, naming, categorising and describing phenomena), axial (the process of relating codes to each other) and selective (choosing a core category and relating other categories to that)
Regarded by some as the only 'true' Grounded Theory Methodology (GTM)	Regarded by some as a form of qualitative data analysis (QDA)

The role of existing literature within research activities is clearly different between the two approaches. Specifically, Glaser (1992) asserts that the literature should not be examined before commencing the study so as to avoid constructing prior assumptions and beliefs which might unconsciously bias the researcher. He says "there is a need not to review any of the literature in the substantive area under study" (Glaser 1992, p. 31). He continues (Glaser 2004, p.9) that the "pre-study literature review of QDA [Qualitative Data Analysis] is a waste of time and a derailing of relevance for the GT [Grounded Theory] Study". Glaser (1992) supposes that the research problem and questions are only discovered once coding begins and "the research question in a grounded theory study is not a statement that identifies the phenomenon to be studied" (p.25).

In contrast, Strauss and Corbin (1990) acknowledge that there should be some survey of the literature before the fieldwork commences and that the researcher enters the research area with some knowledge of the phenomenon being studied. Strauss and Corbin (1990) believe that the literature can be used to derive questions that the researcher desires to use in field work. They state that "The research question in a grounded theory…… tells you what you specifically want to focus on and what you want to know about this subject" (Strauss and Corbin 1990, p.38). They also state that the literature directs the theoretical sampling, and is helpful for theoretical sensitivity (see later sections for definition of these terms). Furthermore, it can be used as way for supplementary validation, meaning that after the researchers finish their research, they could show how it differs from previous literature or includes common findings.

Hekkala (2007) states that the Straussian approach is an inductive-deductive one; deductive as the researcher has some preconceived theories and hypothesis, and inductive as it enables new concepts to emerge. Surveying the existing literature is necessary in order to help the researchers identify the relevant concepts and theories of their research. It lets the researcher make sense of data that is gathered from the fieldwork.

Glaser (2002) criticises the Straussian approach, stating that he is forcing a theory from the data because he forces data into predetermined paradigm model (i.e., cause, condition, context, and consequence) relationships rather than letting any theory emerge. In the Glaserian approach the researcher does not have to find preconceived causes, consequences or action/interaction relationships (Glaser, 1992). According to him this paradigm model is the aim of qualitative data analysis, termed by him to be a "full conceptual description". For this reason, as stated by Hekkala (2007), Glaser claims that Strauss and Corbins' (1990) approach can only be considered as a method providing techniques for data analysis, not a methodology. Glaser (2004) states that the original version of grounded theory (Glaser and Strauss 1967) is a methodology while the later versions are QDAs. Glaser (1992, 2002) maintains that the Straussian approach focuses on conceptual description by spending time describing the researched situation and categories without abstracting the time, people and place, while the original or classical grounded theory, as he likes to name it (Glaser 2004), focuses on conceptual analysis by concentrating on conceptualisation and abstraction of data, and generates conceptual hypotheses that can be applied to any relevant times, places and people. However, Strauss and Corbin (1990) also claim that the researcher whose uses grounded theory should analytically move from description to conceptualisation in the selective coding stage.

Grounded theory procedures

This section elaborates on Strauss's procedures of analysis in order to show subsequently how these can be combined with the case study research method to form a viable research methodology. Hekkala (2007) notes that most IS researchers rely on Strauss and Corbin's (1990) book, which concentrates on providing techniques for researchers who want to use grounded theory.

Strauss and Corbin (1990) assert that the coding procedures in grounded theory are neither automatic nor algorithmic - "we do not at all wish to imply rigid adherence to them" (Strauss and Corbin 1990, p.59). In other words, flexibility may be necessary in certain circumstances.

Coding is the key process in grounded theory (Strauss and Corbin 1990). It begins in the early stages after the first interviews for data collection. This process comprises three coding steps. Through this process, two analytical techniques are used. The first is constant comparative analysis, which is a continuous process of identifying conceptual categories and their properties emerging from data by consistent comparison of that data. The researcher needs to be sensitive, which means the ability both to identify what data is significant and to assign it a meaning. This sensitivity comes from experience, especially if the researcher is familiar with the subject under investigation. The literature review is another source of the theoretical sensitivity (Strauss and Corbin 1990), and so are the expressions of the interviewees themselves, in particular when they repeat the same phrases and concepts. The other technique is the asking of questions. Once the researcher names the concept (event, idea, action and incident) then he or she asks questions regarding such things as what this is and what it represents.

The three steps of coding are:

Open coding is "the process of breaking down, examining, comparing, conceptualizing and categorizing data" (Strauss and Corbin 1990, p.61) by which concepts and their proprieties and dimensions are identified from data that are transcribed by the researchers. This can be achieved either line by line or by focusing on main ideas in sentences or paragraphs (Strauss and Corbin 1990). Each code represents a word or sentence containing a meaningful idea, and a group of codes (two or more) forms a concept. A concept is an abstract representation of an event, object or action. In open coding, events, objects and actions are compared with others in terms of similarities and differences in order to give them, when similar, the same name. The name or label that is assigned for a category should be selected logically and usually seems to represent the data and be related to it. A reading of the literature gives the researcher an initial set of concepts that can be used, but researchers should not be constrained by these concepts; rather they should focus on the words and phrases used by the participants themselves. It is in this way that names are assigned to categories (Strauss and Corbin 1990).

Axial coding is the process of reassembling data that were broken down through open coding. Essentially, it is the process of relating categories to subcategories. Categories are higher in level and more abstract than concepts, and are generated by constant comparison of the similarities and differences between such concepts. This is done by using what is called the 'paradigm model', which enables the researcher to think systematically about the data and relate them to each other. This model addresses the relationships between the categories by considering the following aspects:

- *Causal conditions* represent incidents or events that lead to the occurrence of the phenomenon.
- *Phenomenon* represents the central idea or event, indicate about which a set of actions/interactions are directed at meaning or handling or to what extent that the set of actions are related.
- *Context* refers to specific properties related to a phenomenon. It represents a set of conditions where in which action/interaction strategies are taken.
- *Intervening conditions* can exercise influence by facilitating or constraining the action /interaction strategies within a particular context.
- *Action/interaction strategies* are devised to manage, handle, carry out and respond to a phenomenon under a specific set of conditions.
- *Consequences* are the outcomes of action and interaction.

Selective coding is the process of integrating and refining the theory. The first step in integration is to identify the central or core category, which represents the main theme of the research. To be core, the concept must appear repeatedly in the data. The central category acts as a master that pulls the other categories together to form an explanatory "whole picture" by using the paradigm model. In this step the categories are refined at a high level of abstraction, and categories that need further explication are given more descriptive details (Strauss and Corbin 1990). The integration is not dissimilar to axial coding except that it is done at a higher, more abstract level of analysis, and the subcategories are linked to the core category. Finally, a story line which is a conceptualisation of a narrative description of the study's central phenomenon is analytically explained.

In summary, the following sequence is followed in grounded theory in order to arrive at the research model (theory) which is grounded from the data:

Codes→Concept(s)→Categories→Model (Theory).

Sampling in grounded theory is based on theoretical sampling, on the basis of concepts that have been shown to have theoretical relevance to the developing theory. It is related to the sampling of new data based on the analysis of that initially collected from the previous interviews, where the concepts that emerge constantly guide the researcher as to the nature of future data, their sources and the issues to be discussed in subsequent interviews in order to develop the categories. The initial questions for the fieldwork are based on concepts derived from literature (i.e. data gathered previously), which provides the researcher with a starting point and a focus; later, the sampling becomes more in-depth. Strauss and Corbin (1990) explain that the sampling should focus on sampling incidents and not persons per se – in other words, collecting data about what informants do or not in terms of action/interaction, condition and consequence of the action. The researcher continues this process until the theoretical base is saturated, where no new data emerges regarding categories and their relationships.

Justification for using grounded theory and in particular the Straussian approach with case study method

Fernández et al. (2002) state that grounded theory (the Glaserian approach) and case studies can be used in combination. Fernández et al. (2002) adopt a Glaserian approach with this combination. However, this appears incongruous as the use of this approach means that the researcher should not review any literature before the fieldwork, and that the research question is based on the emergence of codes during data collection and analysis – yet this is contradictory to the case study research that was developed by Yin (1994).

Hughes and Jones (2003) state that grounded theory is consistent with interpretive case studies that investigate social and organizational contexts. Hughes and Jones (2003) suppose that there are some justifiable reasons for the use of grounded theory in interpretive case studies. Nevertheless, they do not show how and why the case study is consistent with grounded theory and could therefore be combined to form a methodology, and which variant of grounded theory is more appropriate.

Hughes and Jones (2003) also state that empirical work shows a discrepancy between the interpretive perspective and the grounded theory procedures by which they ought to be applied, where the procedures of coding, comparing, categorizing and saturating have a positivist and mechanistic attitude. However, Strauss and Corbin (1990) defend their position, stating that the procedures used in grounded theory are neither automatic nor algorithmic, and that they do not compel the researcher to adhere completely to them. Furthermore, by using the techniques of constant comparative analysis and of asking questions for each code (i.e. what does this mean and what does it represent), interpretations are made by the researcher, especially when new concepts emerge; this is still under the interpretative assumption that the researcher is considered part of the research process.

Pandit (1996) proposed a framework that he adopted in his doctoral study for building theory which was dependent on Strauss and Corbin (1990)'s grounded theory variant and which incorporated some elements of the case study research method. This framework demonstrates the procedures from defining the research question until building the theory and ending by comparing the resulted theory with the literature. However, whilst this framework provided useful guidelines for building the theory, and whilst the framework has some identical procedures to that defined in the proposed methodology in the present paper, his paper does not provide answers as to why the Straussian approach, and not the Glaserian one, can be integrated with case study research. The aim of the present paper is to justify that case study and grounded theory as a method can be compatible, but only if the Straussian approach is used.

In essence, there is a similarity between the case study method and the Straussian approach to grounded theory, as explained below:

- The case study strategy devised by Yin (1994) suggests that the researcher should start with a specified problem statement and a set of research questions and propositions. He states that research propositions direct the researcher to focus on what kinds of information to collect; with no research propositions the researcher might be tempted to collect everything. These propositions emerge from existing literature. He furthermore refers to the literature review in order to develop the case study protocol which includes the research objectives and case study questions that are used as a reminder rather than as the actual questions by which data is collected from the interviewees. Identifying previous constructs guide the researcher to form the preliminary design of theory-building and serve to evaluate them accurately in interviews (Eisenhardt 1989). Eisenhardt (1989) states that it is important for researchers to recognize that it is impossible even in the case of theory-building research to start with a clean theoretical base, but that researchers should predetermine prior variables without finding relationships between them. They should also not be restricted by only those as sometimes new factors are found during data collection that need to be added and reform the theory. This also agrees with Strauss and Corbin's (1990) approach that the researcher cannot start without any literature on the phenomenon that is being studied; nevertheless, the researcher is not limited by the literature and embraces the flexibility of accepting emergent ideas. Moreover, the research question in grounded theory should tell the researcher specifically what to focus on and what the researcher wants to know about the subject of research.
- Both case study and grounded theory using interviews as a technique for data collection (Allan, 2003), and both consider the interview to be the main source of data (Yin 1994; Walsham 1995; Strauss and Corbin 1990).
- The chief characteristic of case study research is the specification of the boundary and the scope of the research cases and the unit of analysis (e.g. organization, group of people, certain system, activity); this is compatible with the grounded theory concept of theoretical sampling as mentioned by Strauss and Corbin (1990) where the criterion for selection of the cases and the unit of analysis in the case study is relevance, and theoretical sampling serves to seek in-depth information from the cases, and to discover and develop the concepts and theories.
- The generalization of research findings by case study and grounded theory is similar in that the results of the research might be transferred to another context and situation with similar characteristics. Grounded theory aims to develop theories and concepts that can be generalized and applied to other situations. The generalizability of the grounded theory is partly achieved through a process of abstraction; the more abstract the concepts, the more theory applicability (Strauss and Corbin 1990). In the same way, Yin (1994) states that in case study research the researcher's aim is to expand and generalize theories: "analytic generalization" rather than "statistical generalization". Walsham (1995) specified this analytical generalization by the developing of concepts, the extending and generating of concepts and theories, and the drawing out of specific implications.

It can be said that the major difference between the case study and grounded theory is that the latter details the procedure of data analysis as discussed in the previous section, while the analysis process proposed by Yin (1994) including pattern matching and explanation building is not as rigorous for analyzing an interpretive case study data as the procedures and techniques provided by Strauss and Corbin (1990); including coding steps, constant comparative analysis and theoretical sensitivity and sampling. One of the main criticisms of the case study is related to the analysis of huge qualitative data where there is no standard analysis approach (Darke et al. 1998). Therefore, this justifies the need for systematic procedures for analyzing data collected from case studies, where, in this paper, the grounded theory (i.e. Straussian approach) is integrated with the case study to fulfill this purpose.

One of the issues that may emerge regarding this combination is whether there are any differences between integrating a single case study with grounded theory and integrating multiple case studies with grounded theory. Yin (1994) states that the case study can be single either if it is unique or revelatory, or if it represents a critical case for testing a well-formulated theory. Walsham (1995) states that a single case study allows the in-depth investigation of the phenomenon and the collect of a rich description. Benbasat et al. (1987) also states that a multiple case study is good when the aim is to describe some entity from different perspectives, to build theory, and/or to perform cross case analyses and comparisons which ultimately lead to more general research results. The present authors believe that the way of analyzing data under the proposed case study and grounded theory integration is similar regardless of the number of cases. However, in terms of theory constructing and richness, as the number of cases investigated and analyzed grows (Eisenhardt (1998) suggested that the number of cases from four to ten is desirable for theory building using case study research), the theory may become more coherent and more able to cover variant situations. If a comparison between cases is the intent then the unit of analysis within each case should remain identical, as

should the procedures of analysis. Furthermore, constant comparative analysis between segments of data continues to apply to data irrespective of whether that data has been gathered from case number one or case number n.

Evaluation of the proposed methodology

Yin (1994) has proposed a set of tests and criteria (validity and reliability) for evaluating the quality of a case study. Strauss and Corbin (1990) also define a set of criteria and a group of questions in order to ensure that concepts, categories and theories are fully developed and grounded. Yin's (1994) criteria are not adopted in this paper for evaluating the proposed methodology, which combines case study and grounded theory, because these criteria are measures only suitable for positivist quantitative research, and are not for interpretative qualitative research (Golafshani 2003). Whereas positivist quantitative research aims to test and predict hypotheses, interpretive research aims to understand the phenomenon within its natural setting and the human insight. Thus, the criteria for evaluating the positivist view are not appropriate for the interpretative, since the aim of each one is different. On the other hand, Strauss' criteria could form the basis of the evaluation in particular of generated concepts and theory. Because both case study and grounded theory are integrated under the umbrella of interpretative qualitative research, the combination of both as a methodology involves finding a mutual basis on which to evaluate that methodology. This is why Lincoln and Guba's (1985) criteria are adopted: they are designed for interpretative qualitative research in general, and their criteria evaluate the entire research process. These criteria are:

- **Credibility**, which demonstrates that the research was conducted in such way that its subject was correctly identified. Credibility is enhanced by using multiple sources as evidence for data, by assigning to various respondents the concepts and meanings that have been gathered in order to find matches, by allowing participants to check their interview transcripts and give comments on them, by using data triangulation, and through prolonged engagement in fieldwork.
- **Transferability**, which shows whether the findings can be generalized to other situations. The generalization in interpretive qualitative research is not deduction from small samples to large populations, but is rather to show how certain findings can obtain the same results when they are transferred to other contexts with similar properties. This can be achieved by providing the reader with rich, detailed information of the context that has been investigated.
- **Dependability**, which shows that the research process is systematic and well documented and can be traced, and which gives documentation of the methods and approaches used in the research.
- **Conformability**, which assesses whether the findings emerge from the data collected from cases and not from preconceptions by showing raw data and demonstrating the steps of the analysis leading to extraction of the results and outcomes.

Interestingly, Pandit's (1996) case study and grounded theory combined methodology is assessed using Yin's criteria. As argues above, these criteria are not appropriate for interpretive research. In essence, Pandit (1996) did not distinguish between the IS research paradigms in his framework and consequently provides no acknowledgement as to whether the case studies in his framework are positivist or interpretative, and of the different evaluation requirements of each.

Figure 1 illustrates how grounded theory can be integrated with the case study research method to form a research methodology. As shown in this figure, the researcher starts with a general research topic. In order to identify gaps, discover new areas of research or extend the existing body of knowledge, the researcher reviews the literature. Based on this survey, the problem studied becomes more limited and the research's question is identified; this defines the aim of the research. The survey helps the research identify the relevant concepts and theories pertaining to the research question, and consequently models or a set of propositions (concepts) are proposed. These are not to be tested or validated, but rather serve to enhance theoretical sensitivity and sampling. The cases and units of analysis are selected for their relevance to the research question, and the research protocol is prepared including research questions to be asked in the field by considering flexibility and enabling new data to emerge. These data are collected principally from interviews, but possibly also from documents, observations and artefacts. In fieldwork, the interplay between data collection and analysis is processed simultaneously by identifying ideas emerging from the first interviews, so that the area under study becomes more focused as time progresses. At the same time theoretical sensitivity and sampling and constant comparison between data are taken into account finally result in that data becoming saturated, which is the point at which no new ideas emerge. A systematic process of coding begins once the empirical data has been gathered, at each step of which there are outcomes: codes and concepts, and

categories and relationships between them. These ultimately form the research model. It could be that the resulting categories and relationships are not fully saturated, so a second round of data collection and analysis is initiated, which develop new version of the research model. The entire process that results in this model is then evaluated according to criteria of credibility, transferability, dependability and conformability. Finally, the researcher may show the originality and the contribution to the literature by comparing the present research with the previous work and the initial model.

Conclusion

This paper provides contribution in two ways: firstly, for all IS researchers, this paper has provided theoretical development in methodology. In particular, it has justified the use of Strauss' approach to grounded theory in conjunction with case study research, under interpretive assumptions, as a methodology. The paper clearly distinguishes the proposed methodology from that of Pandit (1996), as well as providing the way of evaluating the methodology, and examining the implications for the proposed road map should the case study be single or multiple in nature. Secondly, for beginner researchers in the field of IS, it provides them with the main issues that they will need to understand if they want to use grounded theory as a method with a case study research, by showing how the elements of case study and grounded theory are compatible. The current researchers have adopted this methodology for conducting empirical research and this provides some evidence as to the methodology's effectiveness.

Figure 1. Case study-Grounded theory Methodology

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